DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-000567
Date Inspected: 01-Oct-2007

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 630
OSM Departure Time: 1530
Location: Shanghai, China

CWI Name:	CWI/Xu Bing			**CWI Present:**	☑ Yes	☐ No	
Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☐ Yes	☐ No	☑ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Approved WPS:**	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: Tower Mock-up 77 and 114 M

Summary of Items Observed:

CALTRANS Quality Assurance (QA) Inspector, Alfredo Acuna was present for the fabrication of the Mock-up 77 and 114 meters elevations scheduled for this project at the ZPMC facility in Shanghai, China for the San Francisco Oakland Bay Self Anchored Suspension Bridge.

The QA inspector witnessed the ZPMC's ultrasonic testing (UT) on the Tower Mock-up 77 M and 114 M.

Tower Splice Mock-up 114

Skin C Lower Panel

The QA inspector witnessed ZPMC Quality Control inspector E Shuiqin and Li Li Ming performing Ultrasonic testing at the junction of the skin C lower panel and longitudinal stiffeners joint # 1, 2, 3 and 4. The QA inspector observed Mr. E and Mr. Li scanning the weld joints from side C with the 45 degree angle wedge. The UT verifications performed by Mr. E and Mr. Li appeared to be in general compliance with AWS D1.5 2002.

The digital photograph below show Mr. Li and Ms. E performing UT verification to the skin C lower panel scanning from side C.

Skin A and B Upper Panel

The QA inspector witnessed ZPMC Quality Control inspector E Shuiqin and Li Li Ming performing UT at the junction of the skin A, MA-107 and longitudinal stiffeners joint # 1, 2 and 3 upper panel. The QA inspector observed that Mr. E and Mr. Li recorded on the steel three (3) rejectable indications located: joint #MA107-1, Y value 470 mm, depth 30 mm and 30 mm of length; joint #MA107-2, Y value 480 mm, depth 48 mm and 20 mm of length and joint #MA107-3, Y value 25 mm, depth 56 mm and 40 mm of length.

The QA inspector witnessed ZPMC Quality Control inspector E Shuiqin and Li Li Ming performing UT at the junction of the skin B and longitudinal stiffeners mp1009 and mp1006 joint #5 and 8 upper panel. The QA inspector observed that Mr. E and Mr. Li recorded on the steel one (1) rejectable indication located at: joint

#MA101-8, Y value 20 mm, depth 42 mm and 175 mm of length.

The QA inspector had a conversation with the ZPMC QC representative Fu Yu Hong. The QA inspector asked Mr. Fu how many repairs ZPMC had made at the location where ZPMC found the 175 mm rejectable indication. Mr. Fu relayed that this general area had been repaired three times but, no in the same location. The QA inspector requested the UT reports to verified the locations.

The photo below shows the location where ZPMC found the 175 mm rejectable indication.

The QA inspector observed that the UT verifications performed by Mr. E and Mr. Li appeared to be in general compliance with AWS D1.5 2002. However, the following item was not in compliance with AWS D1.5 (2002) and ZPMC's UT procedure:

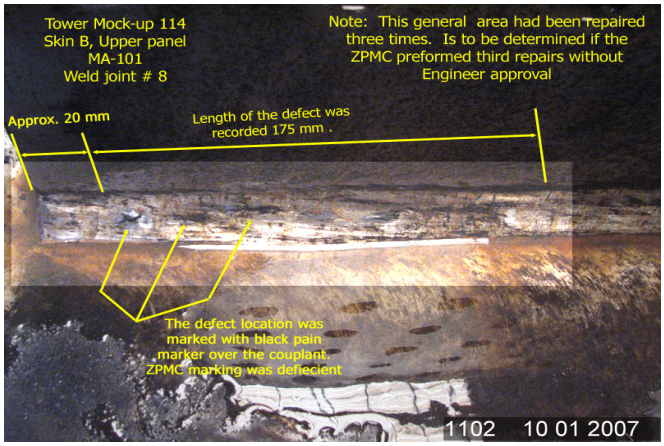
1. The QA inspector observed ZPMC verifying the angle beam of the transducer wedge calculating the probe-target relationship in lieu of verifying with the engraved marks as per D1.5 (2002) and ZPMC's UT procedure. ZPMC's IIW block type II did not allow reading +/- 2 on the scale from the IIW block. Note: A non conformance report (NCR) has been issued addressing this situation.

Note: ZPMC marked the UT indications rating, depth and marked the location on the steel, however: The overall marking in the steel was not clear. ZPMC did not erase marking for previous defects found which make difficult to read. ZPMC was marking over wet couplant which blur the paint marks after the couplant dry up. This condition have been addressed with ABF and ZPMC representatives in numerous opportunities. The QA inspector had a conversation with Caltrans Task Leader Jimmy Cochran. The QA inspector brought to the attention to Mr. Cochran the above mentioned condition.

Tower Mock-up 77 Meters Elevation

Skin B Upper Panel

The QA inspector witnessed ZPMC Quality Control inspector E Shuiqin and Li Li Ming performing Ultrasonic testing at the junction of the skin E and longitudinal stiffeners joint # 1 thru 4 panel. The UT testing was still in process at the end of the shift.



Item	Description	WBS	Dwg No.	Status
1	Splice panel to longitudinal stiffeners welding			

ZPMC, welder Chang Chuancang was observed by the QA Inspector performing welding operations on the splice panel A58 panel weld joint # 2 (p268 longitudinal stiffener).

Mr. Chang was following the approved welding procedure specification WPS-B-T-2332-TC-U5-F. Base metal was designated as A-709 Grade 50. ZPMC was using the flux cored arc welding (FCAW) process in the horizontal (2G) position with the 1.4 mm diameter electrode designated as E71T-1 /AWS A5.20, brand name Supercored. The QA Inspector verified amperage, voltage, travel speed, preheat and heat interpass temperatures for the filler passes. The

WELDING INSPECTION REPORT

(Continued Page 3 of 3)

QA inspector found that the welding parameters recorded after ZPMC approved Certified Welder Inspector Xu Bing appeared to be in accordance with the contract documents.

Summary of Conversations:

As noted above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

Inspected By:	Acuna,Alfredo	Quality Assurance Inspector
Reviewed By:	Cuellar,Robert	QA Reviewer